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THE IMPORTANCE OF ELECTRIFICATION IN RUMANIA

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/Summary: The Rumanian electrification plan is patterned on the GOELRO (State Commission for the Electrification of Russia) of the USSR. The electrification plan is considered to be a fundamental basis for expansion in mining, steel, electrical engineering, machine building, chemicals, forestry and lumber, telecommunications, agriculture, transport, and medicine./

The GOELRO of the USSR established the pattern for the electrification plan of the RPR (Rumanian People's Republic). The GOELRO provided for an increase of 2,000 percent in the production of electrical energy in a 10-15 year period after 1920. This plan was so successful that by 1937, the USSR ranked third in the world in electrical energy production.

As early as 1945, Gheorghiu-Dej saw the importance of electrification. He stated at a national conference of the Rumanian Communist Party that electrification was the very basis for industrialization. Five years later, on 26 October 1950, he presented the draft plan for the electrification of the country to the plenary session of the Central Committee of the party. In this plan he integrated industrialization of the national economy with the plan for the development of electrical energy production.

Now, 2 years later, industry is still suffering from the lack of power, however. Each step forward in the mechanization of agriculture and the development of industry is checked by the insufficient supply of electrical energy. A series of large-scale projects were undertaken to remedy the lack. These included the V. I. Lenin Hydroelectric Plant and other plants in Moroeni and Doicesti. The Moroeni Project will supply Muntenia before the end of 1952.

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The Doicesti station will supply Bucharest, as well as the petroleum fields of Prahova and Arges regiunes. The USSR has furnished every type of assistance. It is expected that at the end of the Five-Year Plan, 80 percent of all electrical energy available will be used by industry.

The introduction of electricity and Soviet electrical equipment has produced a veritable revolution in mining. In the coal industry, mechanization has begun to cut out unproductive manual operations. Extraction is carried on by Soviet electrically operated machines: the KMPI mining machine, and ER-4 drills. In underground transportation, electric belts, PK-19 screw lifts, MUL-45 cranes, and other tools are used. Eventually, mining will be completely mechanized, with the aid of electricity produced by the Southwest Transylvanian network. By 1955, coal cutting will be 80 percent mechanized, surface transport, 75 percent; and underground transport, 80 percent. Electricity will be used in the preparation of coal and ferrous and nonferrous metals. It will operate crushers, drum mills, vibrating sieves, conveyer belts, and other equipment. Ferrous metals will be separated from waste by electromagnets. The transport of waste to worked-out areas will be simpler and more economical. In general, electricity will permit underground mechanization in copper, lead, and zinc mines and the mechanization of heavy work in all kinds of strata. There will be a resultant rise in labor productivity and greater training of miners. Coal production was 20 percent greater and labor productivity 60 percent greater in 1950 than in 1951 as a result of mechanization already achieved.

Electrical energy will permit the production of higher quality steel through the use of electric furnaces. Precise control of the heat of processing will be made possible by the use of automatic equipment, according to a prearranged curve. The present crude work of loading, unloading, and sorting of scrap iron will be done by overhead rolling bridges and cranes equipped with electromagnets. It will be possible to transport red-hot steel from the furnace to the rolling mill and from the rolling mill to the cooler. Under an agreement between the RPR and the USSR, the former will receive equipment necessary for the mechanization of metal mining and processing.

The electrical engineering industry will produce new products such as turbogenerators, high-tension equipment, transformers, cables, and insulators. In the last year of the Five-Year Plan, the production of electric motors will increase 500 percent, and the production of transformers will be four times as great as in 1950. Radio-Popular /a laboratory?/ examined the use of high-tension currents for heat processing and fusion. These experiments prepared the way for the introduction of advanced technology in metal-processing industries.

In the machine-building industry, electrification will permit the manufacture of huge new aggregates such as thermoelectric turbines, hydroelectric turbines, and high-pressure boilers. Automatic electric Soviet machine tools are now being used in this industry. In addition, the spark-machining method developed by B. R. Lazarenko and N. I. Lazarenko is used. The method, based on the removal of metal from work pieces by an electrothermal process, contributes to labor productivity. The sharpening of cutting edges of milling machines required 4-5 hours. This is now done by the new method in 60-80 minutes. Another new method, heating by high-frequency current, increases the resistance of pieces and permits greater economy of tools and processing time. Electrification will lead to a great increase in electric welding, arc welding, resistance welding, atomic-hydrogen welding, plain welding, and seamless welding. As a result, production will be twice as great in 1955 as in 1950; labor productivity will be 70 percent higher.

Electricity will be especially valuable in industrial chemistry. It will permit the use of native soils and subsoils. Chemical processes require the use of great quantities of power. Additional supply of electricity will permit, for the first time, the exploitation of strata of bauxite, salts, corundum, manganese, and other materials. It will make possible the use of methane for chemicals and for coal and steel processing. This will obviate the necessity of importing commodities vital to the economy. For example, the large-scale production of caustic soda will contribute to the development of the steel industry, the cellulose and synthetic fiber industry, and the soap industry. The production of aluminum will permit the replacement of rare or expensive metals. The production of chemical fertilizer will result in increased agricultural production. A greater supply of pharmaceuticals will lead to improved health. Electricity will benefit not only the chemical industry but also other industries which employ chemical processes.

In forestry and lumber, the substitution of the electric saw for the ax will raise labor productivity 300-400 percent. In addition, the Soviet electric TL-3 crane will do ten times the work of animals

In transport, electrification will lead to improved railroads. The V. I. Lenin Plant will make possible through its dam navigation on the Siretul River between Galati and Bacau by raising the river level. In telecommunications, experiments have been in progress in the use of high-frequency equipment and installations.

Agriculture will benefit in several ways. Water used for power will also serve for irrigation. Dams and lakes on the Lenin project alone will permit irrigation of 300,000 hectares of steppe and woodland wastes in Southern Moldavia and Northern Baragan. They will, at the same time, alleviate floods of the Bistrita. In addition, electrification will supply MTS, state farms, and collectives with power. It will permit increased stock raising and the mechanization of threshing, drying, and sorting. In 1950, approximately 300 reapers were used; in 1951, more than 500 reapers and 600 threshers. This is only a modest beginning. Rural electrification also contributes to a higher standard of living for peasants. Two thousand villages are to be equipped with electricity in the next 3 years. Half of these will receive power from high-tension lines and half from small local stations. It has been estimated that approximately 500,000 kilowatts can be delivered by these local stations. The stations will be of the wood-burning Sokolov type or will have thermoelectric generators where there is local fuel of other types. The small thermoelectric stations, equipped with locomotive boilers, will be heated by peat, lignite, coal dust, natural gas from small exploitable strata, gasogene, agricultural wastes such as straw and corn stalks, and forestry and lumber scrap.

Electrification will permit the widespread use of streetcars and household equipment such as heaters, ventilators, refrigerators, freezers, washers, and other items. In medicine, the use of X-Ray and ultrashort-wave equipment, as well as electronic microscopes, will become possible. By 1955, radiofication centers will have one million loud-speakers. Cultural halls will become centers of learning and social activity

Scientists will have to be trained in these fields. This matter was discussed at a session of the Academy of the RPR on 29 October - 2 November 1951. Other agencies which deal with electricity are the Institute of Electrical Energy of the RPR, the Institute of Electrical Engineering Research, and the Institute of Energy Planning and Study

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